

REMARKS

After entry of this Amendment claims 1-20 are pending in the Application. Claims 1-10 have been amended. Claims 16-20 have been added. Reconsideration of this Application as amended is respectfully requested.

Claim 1 stands rejected under 35 U.S.C. §102 (b) as being anticipated by Cagnon et al. It is submitted that Cagnon does not anticipate, teach or suggest the invention as recited in claim 1 as amended. In particular, Cagnon does not anticipate, teach, or suggest a shaft having a roller bearing mechanism with an inner race, an outer race, and a plurality of rollers located on the second end of the shaft, and/or a tapered member for generating an axial force transmitted through the outer race of a roller bearing and into the shaft where the shaft is supported by a single bearing located on the first end of the shaft. Cagnon discloses a tapered sliding member 43 for generating an axial force into a rotating shaft 21 and a single ball bearing 38 for supporting the shaft 21 on the same end of the shaft as the tapered member 43 is positioned on. Cagnon further teaches in column 2, line 43 through line 60, that the shaft 21 is formed so that the left end 36 thereof has a recess 37 therein which receives a ball bearing 38. During normal operation of the rotating shaft 21, in the direction of arrow A in Figure 2, the thrust load applied to the shaft 21 causes the ball bearing to be in contact with the first surface 34 formed in the plate 33. The second surface 41 is inclined at an angle towards the axis of the shaft 21. The angle of the inclination is opposed to the direction of the normal thrust load on the shaft which normal thrust load direction is indicated by the arrow designated B in Figure 2. The second surface intercepts the shaft 21 at a position spaced along the axis of the shaft at a distance from the first surface 34 formed in the plate 33. A U-shaped wedge member 43 has a pair of depending legs which define the surface 44 for cooperation with the second surface 41 formed on the housing 28. The Cagnon reference discloses that the U-shaped wedge 43 and the ball bearing 38 are located on the same end of the shaft and there is no axial loading being driven through a roller bearing mechanism as recited in amended claim 1. Reconsideration of the Examiner's rejection of claim 1 is requested.

Claims 2-11 and 13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Cagnon in view of Slayton. The Examiner asserts that Cagnon substantially discloses the claimed invention except for a roller bearing with inner and outer races located in the gear housing. The Examiner asserts that it would have been obvious to someone skilled in the art at the time of the invention to modify the electric motor of Cagnon with the bearing structure of Slayton for the purpose of providing a bearing that accommodates axial loading or impact. The combination of Cagnon in view of Slayton does not anticipate, teach or suggest the claimed invention as recited in claims 2-11 and 13. Cagnon teaches a tapered support 43 for generating force towards a first end of a shaft having a ball bearing 38. Slayton teaches in column 3, line 49 - 55, a shaft 20 having a roller bearing 22, and a bowed washer to engage the outwardly disposed side of the outer race 32, to urge the bearing against retainer 50, to reduce end play in the armature. The addition of Slayton does not overcome the deficiency of Cagnon, since neither reference teaches a tapered member supporting a roller bearing mechanism that is connected to the second end of an armature shaft and a second bearing support connected to the first end of the shaft. The Slayton design requires the roller bearing 32 to be held in place on one side by upper surface 66 of the housing and by a wave washer 70 on the other side. Trying to combine the tapered member of Cagnon to force the roller bearing and shaft toward a support bearing on the first end of the shaft would cause Slayton to be inoperable since the axial force would be transferred to the housing through the wave washer 70. Neither Cagnon nor Slayton discloses a tapered sliding member imparting force to the outer race of a roller bearing mechanism in the direction of the second support bearing. Neither Cagnon et al. nor Slayton taken singularly or in any permissible combination anticipates, teaches or suggests that an inner race imparts an axial load on the shaft. Neither Slayton nor Cagnon teach a fixed thrust washer and a tapered member on the opposite side of the roller bearing, nor do the references teach a thrust washer in contact with an inner race of a bearing mechanism. Reconsideration and withdrawal of the Examiner's rejections is respectfully requested.

Claims 12, 14 and 15 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Cagnon, in view of Slayton and in further view of Giandinoto, et al.

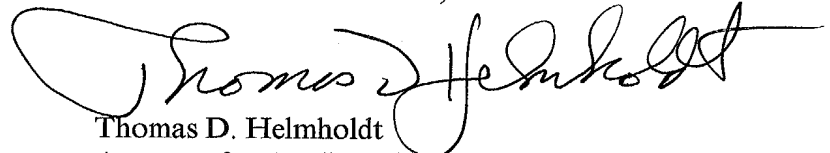
The Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the drive device of Cagnon with the bearing structure of Slayton and the helical structure of Giandinoto for the purpose of reducing torque [sic?] provided by the spring, and that it would have been obvious to select a spring made of rubber or plastic. The addition of the Giandinoto, et al. reference to either Cagnon or Slayton fails to overcome the deficiencies in Cagnon in view of Slayton. In particular, none of the references taken singularly or in any combination, anticipate, teach or suggest a spring element that imparts a force to a tapered sliding member which in turn imparts a force to the outer race of a roller bearing mechanism in the direction of a second support bearing. Reconsideration and withdrawal of the Examiner's rejection is respectfully requested.

It is respectfully submitted that this Amendment traverses and overcomes all of the Examiner's objections and rejections to the application as originally filed. It is further submitted that this Amendment has antecedent basis in the application as originally filed, including the specification, claims and drawings, and that this Amendment does not add any new subject matter to the application. Reconsideration of the application as amended is requested. It is respectfully submitted that this Amendment places the application in suitable condition for allowance; notice of which is requested.

If the Examiner feels that prosecution of the present application can be expedited by way of an Examiner's amendment, the Examiner is invited to contact the Applicant's attorney at the telephone number listed below.

Respectfully submitted,

YOUNG, BASILE, HANLON, MacFARLANE,
WOOD & HELMHOLDT, P.C.

A handwritten signature in black ink, appearing to read "Thomas D. Helmholdt", written over the printed name.

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the claims:

1. (Twice Amended) A driving device for [the] a windshield wiper assembly of a motor vehicle[, which has] comprising:
a housing[,];
an electric motor located in [a] the housing connected with a [pivoted] rotating armature[,] shaft having a first end portion and a second end portion:
a gear unit located in the housing with a worm [shaft] located on [a section] an intermediate portion of the armature shaft; [and]
[characterized in that] a support bearing supporting one end of the armature shaft [is supported] at the housing [through a support bearing]; and
[that the] an axial thrust generating device located on an opposite end of the armature shaft from the support bearing and possessing [possesses] a tapered sliding member [which is] supported in the housing [movable] for movement in the radial direction relative to the armature shaft and [is] supported against the armature shaft so that axial force can be applied to the armature shaft in the direction of the support bearing by moving the tapered sliding member.
2. (Twice Amended) The driving device in accordance with claim 1 wherein the armature shaft is supported in a roller bearing with an inner race located on the armature shaft and an outer race located in one of [the] a gear housing and in the motor housing.
3. (Twice Amended) The driving device in accordance with claim 2, wherein the roller bearing is located between the worm [shaft] and the electric motor.
4. (Twice Amended) The driving device in accordance with claim 2 wherein the outer race is supported in the housing [so that it is] to be movable axially and wherein the tapered sliding member imparts an axial force to the outer race in the direction of the support bearing.

5. (Twice Amended) The driving device in accordance with claim 4 wherein the fixed inner race is attached to the armature shaft to[, so that it can] transfer an axial force acting on the outer race to the armature shaft.

6. (Twice Amended) The driving device in accordance with claim 5 wherein a fixed thrust washer is located on the armature on the side of the roller bearing facing away from the tapered sliding member, the thrust washer contacting the inner race.

7. (Twice Amended) The driving device in accordance with claim 6 wherein the thrust washer is formed as a clamp ring [which is] located on the armature shaft in an annular groove formed in the armature shaft.

8. (Twice Amended) The driving device in accordance with claim 1, wherein the tapered sliding member is formed basically U-shaped, where the armature shaft runs in the gap between [the] two parallel legs [of] defined by the U-shaped tapered sliding member.

9. (Twice Amended) The driving device in accordance with claim 2, wherein the housing possesses a collar-shaped area [which extends] extending radially inward, the armature shaft running through [which the armature runs and on which] the collar-shaped area and the tapered sliding member is supported on the collar-shaped area of the housing.

10. (Twice Amended) The driving device in accordance with claim 9 wherein the surface of the collar-shaped area [on which] supporting the tapered sliding member [is supported has] having a bevel [which matches the] matching a bevel on [the] a surface of the tapered sliding member, the bevel on the surface of the tapered sliding member being supported [on which the latter is supported] in the collar-shaped area.

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Claims 16-20 have been added.